

1 -- 59. A monomer composition characterized by being curable to form a resin
2 suitable for optical products consisting essentially of:

3 a first monomer represented by the formula:

4 $R(NCY)_x$

5 wherein R is a hydrocarbon or substituted hydrocarbon radical, Y is oxygen or
6 sulfur and x is two or more;

7 a second polyene monomer wherein the polyene contains only vinyl functional
8 groups; and

9 a third polythiol monomer.

1 60. The composition of claim 59 wherein Y is oxygen.

1 61. The composition of claim 60 wherein the polyene is represented by the
2 formula:

3 $[CH_2 = CR_1-CO-A-]_y R_2$

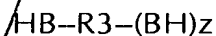
4 wherein R_1 is H or CH_3 ; A is oxygen, sulfur, or NH; R_2 is a polyvalent aliphatic,
5 alicyclic or aromatic hydrocarbon residue, and y is 2-6.

1 62. The composition of claim 61 wherein the polyisocyanate monomer is an
2 aromatic diisocyanate.

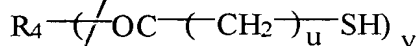
1 63. The composition of claim 62 wherein the polyene monomer is a tri, or
2 tetraacrylate compound.

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- 1 64. The composition of claim 63 wherein the polythiol monomer is selected
2 from the group consisting of a compound represented by the formula:



- 4 wherein R_3 is an organic group consisting of polyvalent aliphatic or alicyclic and
5 aromatic hydrocarbon, z is an integer of 1 to 3, and B is S ; and



- 6 wherein R_4 is a substituted or unsubstituted aliphatic polyhydric alcohol residue, u
7 is an integer of 1 or 2, and v is an integer of 2 to 4.

- C
D 1 65. The composition of claim ⁷⁹64 wherein the polyisocyanate is m-xylylene
2 diisocyanate, the polyene is pentaerythritol tetraacrylate, and the polythiol is
3 selected from the group consisting of pentaerythritol tetrakis(2-mercaptoacetate),
4 1,2-ethanedithiol and mixtures thereof.

- P 1 66. The composition of claim ~~64~~ ⁵⁹ wherein the polyene is triallyl-1,3, 5-triazine-
2 2,4,6(1H, 3H, 5H)-trione.

- 1 67. A process for making resins suitable for optical uses comprising reacting a
2 curable composition comprising the composition of claim 59.

- 1 68. The process of claim 67 wherein the monomers are admixed under non-
2 reactive conditions.

1 69. The process of claim 67 wherein the monomers are admixed at a
2 temperature of room temperature or below.

INS
DI 1 70. The process of claim 69 wherein an initiator is added to the composition.
DI

1 71. The process of claim 70 wherein the initiator is 1,1'-
2 azobis(cyclohexanecarbonitrile) and a reaction catalyst is dibutyltindilaurate or
3 tributylamine.
C

1 72. The process of claim 67 wherein the composition is cured by heating the
2 composition to a first temperature of about 0° to 60°C, then heating the
3 composition gradually to a second temperature of about 100 to 150°C over a
4 period of about 1 to 32 hours, maintaining the composition at the second
5 temperature for about 4 to 32 hours, then cooling the composition to a third
6 temperature of about 20 to 40°C over a period of about 1 to 32 hours.

1 73. The composition of claim 59 wherein photochromic materials are used to
2 provide a tinted optical product.

1 74. The composition of claim 73 wherein the photochromic materials are
2 naphthopyran compounds, spiro compounds or indoline compounds.